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NICKEL IN DECEMBER 1999

In December, reported domestic nickel consumption on a daily average basis was 3% greater than that of November, according to the U.S. Geological Survey. Average daily consumption by the stainless steel industry in December was 14% higher than the November average of 104 metric tons (t). Consumption of elemental nickel to make nickel-base corrosion-resistant alloys increased by 25%. Daily consumption by alloy steel producers—a considerably smaller tonnage than that of stainless steel—decreased slightly. Sales to plating companies averaged 31 metric tons per day (t/d), down 20% from the November sales figure. Percentages reported in this paragraph may not be verifiable owing to concealment of individual company proprietary data.

Preliminary data indicate that U.S. apparent consumption of primary nickel in 1999 will be about 6% higher than the 1998 figure of 149,000 t.

On December 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 2,690 t—25% less than the 3,580 t (revised) for November 30 and 57% less than the 1998 high of 6,330 t reached on December 31, 1998. Stocks in London Metal Exchange (LME) warehouses worldwide decreased 3% during December to 46,962 t. LME stocks at yearend 1998 were 65,964 t. Preliminary data collected by the International Nickel Study Group indicated that, at the end of November, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 89,300 t of Ni in primary products in stock, of which 66,200 t were Class I materials. Class I materials are refined products with a nickel content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, nickel oxide sinter, and East Asian utility nickel—products with a nickel content less than 99%.

The United States imported 130,000 t of primary nickel during the first 11 months of 1999, 7% less than the 139,000 t for the corresponding period of 1998. Class I materials accounted for 85% of total primary imports received during the first 11 months of 1999. Trade data for December 1999 will appear in a subsequent issue.

U.S. Department of Energy suspends plans to sell decontaminated nickel to scrap recyclers

On January 12, 2000, the U.S. Secretary of Energy announced that he had forbidden the release of decontaminated nickel scrap into the marketplace until national treatment standards could be developed (U.S. Department of Energy, 2000; Washington Post, 2000). The U.S. Department of Energy (DOE) has some 6,000 t of "volumetrically contaminated nickel" stored at the East Tennessee Technology Park in Oak Ridge, TN (Nuclear News, 2000; U.S. Department of Energy, 2000). The term "volumetrically contaminated" describes metal that has radioactive contamination dispersed throughout the mass of the metal, as opposed to a surface coating of contamination. The Oak Ridge material is a legacy of the U.S. Government's nuclear weapons programs. The prohibition also applies to all volumetrically contaminated materials stored at DOE's facilities nationwide. The prohibition affects at least 10,000 t of contaminated scrap stored at other DOE sites. The Secretary's order will give DOE managers time to evaluate alternatives to "free release." (See Nickel Development Institute, 1999a, and Reid, 1999a, for a definition and discussion of "free release.")

The East Tennessee Technology Park occupies the former K-25 Site where the defunct Oak Ridge Gaseous Diffusion Plant was located. In 1996, DOE awarded a contract to British Nuclear Fuels Limited (BNFL) to clean up several buildings at the former uranium enrichment plant. BNFL has been removing equipment containing large amounts of nickel as part of the cleanup. Under the original contract, BNFL had the option of melting and decontaminating the nickel before releasing the material into commerce under a State of Tennessee license (U.S. Department of Energy, 2000).

Several industry and community groups began protesting the Government recycling plan as the project approached startup. Opposition has grown significantly since then. On November 30, 1999, the Metals Industry Recycling Coalition (MIRC) sent a letter

to the Secretary of Energy expressing the coalition's opposition to the recycling project. MIRC represents a number of metals producers and trade groups, including the Aluminum Association, the American Iron and Steel Institute, the Copper and Brass Fabricators Council, the Steel Manufacturers Association, and the Nickel Development Institute.

On December 21, 1999, the Nickel Development Institute (NiDI) presented a 15-page brief to the U.S. Nuclear Regulatory Commission (NRC) opposing the entry of "low-level" radioactive nickel scrap into the commercial recycling stream (Nickel Development Institute, 1999a). The NRC is the Federal agency responsible for developing and enforcing national treatment standards for volumetrically contaminated materials. Public hearings are being held to give concerned citizens an opportunity to participate in developing the new standards. On January 6, 2000, the Specialty Steel Industry of North America issued a statement opposing the DOE plan and reaffirming the "zero tolerance" policy of its members toward potentially radioactive scrap metals (Nuclear News, 2000).

NiDI is opposed to "free release" even if the decontaminated metal meets dose-based clearance levels established by the NRC (McKean, 1999; Nickel Development Institute, 1999a,b). NiDI, MIRC, and their member companies are concerned that introduction of decontaminated scrap into the commercial recycling stream would negatively affect the marketability of metal products made from scrap and, more broadly, the marketability of all metal products. They are also concerned that unrestricted use of decontaminated scrap would tarnish the positive image developed over the years by the metals recycling industry. In addition, many steelmakers are worried that increased use of scrap with above-background levels of radioactivity will complicate operations at melting facilities and increase costs (Reid, 1999a,b).

Spokespersons for the metals industry said that the industry might support a "restricted use" program (Nickel Development Institute, 1999a). Under this concept, the contaminated metal would be processed at a dedicated, licensed facility. The decontaminated metal would then be shipped to an NRC-licensed nuclear facility or to a DOE nuclear facility for onsite use only. For example, DOE could refabricate the metal into shielding or into storage containers for radioactive waste.

References Cited

McKean, B.A., 1999, Editorial—Science and perception...and radioactivity: Nickel Development Institute, Communiqué , no. 26, November, p. 1-2.

Nickel Development Institute, 1999a, Nickel industry opposes sale of "low-level" radioactive scrap: Toronto, Ontario, Nickel Development Institute, press release, December 21, 12 p.

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Nuclear News, 2000, Recycling—Richardson halts plans to reuse contaminated metal: American Nuclear Society, Nuclear News, v. 43, no. 2, February, p. 34-35.

Reid, R.L., 1999a, Fighting over 'free release': Scrap, v. 56, no. 6, November/December, p. 44.

———1999b, Radioactivity revisited—Keeping the scrap stream clean: Scrap, v. 56, no.6, November/December, p. 39-48.

U.S. Department of Energy, 2000, Energy Secretary Richardson blocks nickel recycling at Oak Ridge: U.S. Department of Energy, press release, January 12, 1 p.

Washington Post, 2000, DOE stops sale of radioactive scrap nickel: January 13, p. A4.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1998:					
December	6,000	1,140	650	7,790	100,000
January-December	81,400	13,700	5,290	100,000	XX
1999:					
January	6,310	988	399	7,700	7,700
February	6,540	824	669	8,030	15,700
March	7,840	487	817	9,150	24,900
April	7,680	845	602	9,130	34,000
May	8,050	1,150	695	9,900	43,900
June	8,310	1,200	695	10,200	54,100
July	7,560	1,160	481	9,190	63,300
August	7,140	1,000	349	8,490	71,800
September	7,100	1,490	321	8,920	80,700
October	6,700	1,170	288	8,160	88,800
November	6,710 r/	1,210	457	8,380 r/	97,200 r/
December:					
Steel:					
Stainless and heat resisting	1,940	1,060	W	2,990	42,900
Alloy (excludes stainless)	339	W	W	339	6,440
Superalloys	1,320	--	W	1,320	16,400
Copper-nickel alloys	W	W	--	W	W
Electrical, magnetic, and expansion alloys	43	--	--	43	443
Other nickel & nickel alloys	W	--	W	W	12,700
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	972	--	--	972	13,700
Chemical and chemical uses	W	--	--	W	W
Other uses	2,360	9	871	3,240	13,600
Total reported	6,970 2/	1,060	871	8,910	106,000
Total all companies (calc) 3/	XX	XX	XX	13,200	158,000
1999: January-December	86,900	12,600	6,650	106,000	XX
1998: January-December	81,400	13,700	5,290	100,000	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 5,610 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (67.27%) to apparent primary consumption for 1998.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1998:				
December	6,330	877	1,420	8,620
1999:				
January	5,770	308	1,300	7,370
February	4,410	112	989	5,510
March	3,580	354	431	4,360
April	3,120	97	364	3,580 r/
May	3,600	145	351	4,100
June	3,840	110	312	4,260
July	3,560	170	263	4,000
August	3,020	315	269	3,610
September	3,150	202	447	3,800
October	3,040	320	507	3,870
November	3,580 r/	441	597 r/	4,620 r/
December:				
Steel (stainless, heat resisting and alloy)	1,190	416	(3/)	1,610
Nonferrous alloys 4/	1,380	--	(3/)	1,380
Foundry (cast irons)	(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	127	--	410	537
Total	2,690	416	410	3,520

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

	Consumption			Stocks		
Period	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1998:						
December	4,250	623	4,880	4,490	161	4,650
January-December	47,200	9,640	56,800	XX	XX	XX
1999:						
January	4,160	797	4,960	4,070	153	4,220
February	3,800	748	4,550	4,250	156	4,400
March	3,890	850	4,740	4,240	159	4,400
April	3,990	963	4,950	3,650	160	3,810
May	4,360	700	5,060	3,190	171	3,360
June	4,610	1,320	5,930	2,780	217	3,000
July	3,740	1,070	4,810	2,590	177	2,760
August	4,120	1,090	5,200	2,530	167	2,700
September	4,950	1,030	5,980	2,890	157	3,040
October	4,770	1,260	6,030	2,700	156	2,860
November	5,860 r/	1,160	7,020 r/	2,790 r/	150	2,940 r/
December	5,100	869	5,970	3,680	692	4,370
1999: January-December	53,300	11,900	65,200	XX	XX	XX
1998: January-December	47,200	9,640	56,800	XX	XX	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1998:										
November	7,890 r/	616	999	433	300	174	228	10,600	147,000	121
December	6,710	774	296	500	315	169	321	9,080	157,000 r/	84
January-December	120,000	9,850	12,800	2,140	4,210	4,290	3,140	157,000 r/	XX	819
1999:										
January	9,930	697	1,230	185	281	160	181	12,700	12,700	83
February	6,540	783	1,440	302	265	211	240	9,780	22,400	23
March	10,700	926	836	366	394	178	235	13,600	36,100	78
April	6,230	769	1,150	306	414	181	302	9,350	45,400	103
May	9,940	575	860	231	428	303	190	12,500	57,900	80
June	13,000	1,080	1,550	399	260	415	241	16,900	74,800	58
July	5,910	939	1,730	--	330	243	232	9,380	84,200	105
August	9,280	790	1,310	285	316	263	161	12,400	96,600	110
September	13,800	818	1,240	243	192	270	270	16,800	113,000	120
October	6,100	748	1,190	224	526	335	238	9,370	123,000	106
November:										
Australia	1,620	80	--	--	--	--	--	1,700	14,300	--
Brazil	640	--	--	--	3	2	--	645	5,060	--
Canada	3,560	465	--	269	371	1,660	1	6,330	54,400	4
Colombia	--	--	191	--	--	--	--	191	1,650	--
Dominican Republic	--	--	622	--	--	--	--	622	6,820	--
Finland	216	58	--	--	--	--	37	311	4,540	--
France	125	--	271 6/	--	89	--	18	503	4,240 6/	16
Germany	--	(5/)	--	--	94	--	28	122	706	65
Japan	(5/)	1	--	--	12	(5/)	39	52	800	29
Mexico	--	--	--	--	33	139	5	177	1,500	10
New Caledonia	--	--	--	--	--	--	--	--	3,470 6/	--
Norway	3,310	--	--	--	--	--	--	3,310	22,200	--
Russia	624	36	--	--	--	--	--	660	12,400	--
South Africa	--	--	--	--	--	--	--	--	143	--
United Kingdom	19	44	--	--	38	--	3	104	2,030	(5/)
Zimbabwe	176	--	--	--	--	--	--	176	1,170	--
Other	95	57	--	--	45	3	88	288	2,510	(5/)
Total	10,400	741	1,080	269	685	1,800	219	15,200	138,000	124
1999: January-November	102,000	8,870	13,600 6/	2,810	4,090	4,360	2,510	138,000	XX	991
1998: January-November	113,000	9,070	12,500	1,640	3,900	4,120	2,820	147,000	XX	736

r/ Revised. XX Not applicabl

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

6/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
1998:										
November	38	108	1	158	1,300	1,040	156	2,800	38,300	39
December	217	90	1	96	1,120	3,340	367	5,230	43,500	77
January-December	1,210	1,080	918	1,230	12,700	22,400	4,010	43,500	XX	991
1999:										
January	93	60	--	100	615	787	337	1,990	1,990	149
February	11	93	3	168	812	1,010	337	2,440	4,430	59
March	36	90	1	105	958	1,850	460	3,500	7,930	63
April	15	69	1	161	989	2,070	334	3,640	11,600	77
May	78	44	--	102	920	1,600	523	3,270	14,800	121
June	54	85	2	94	979	1,950	200	3,360	18,200	59
July	65	76	6	105	725	1,310	363	2,650	20,800	52
August	142	82	9	181	945	1,280	256	2,900	23,700	69
September	74	60	30	230	1,230	1,830	220	3,670	27,400	52
October	105	89	--	57	1,230	2,290	461	4,230	31,600	58
November:										
Australia	--	--	--	--	--	--	--	--	19	--
Belgium	--	4	--	--	75	1	10	90	675	3
Canada	6	25	--	107	1,030	165	36	1,370	12,200	13
Germany	2	5	--	--	37	(4/)	16	60	610	4
India	--	--	--	--	--	61	(4/)	61	284	--
Italy	--	1	--	--	--	--	1	2	24	(4/)
Japan	--	3	--	--	153	47	54	257	3,080	1
Korea, Republic of	--	4	--	1	7	597	8	617	6,810	(4/)
Mexico	48	10	--	--	--	--	32	90	1,210	31
Netherlands	--	(4/)	--	--	10	--	3	13	229	1
South Africa	--	--	--	--	18	138	--	156	1,220	--
Spain	--	7	--	--	--	6	--	13	2,030	(4/)
Sweden	--	--	--	--	--	4	(4/)	4	142	--
Taiwan	--	1	--	--	--	78	9	88	3,190	--
United Kingdom	--	28	--	--	6	1	(4/)	35	676	19
Other	18	7	--	--	9	71	59	164	2,220	26
Total	74	95	--	108	1,340	1,170	228	3,020	34,700	98
1999: January-November	745	843	50	1,410	10,700	17,100	3,720	34,700	XX	857
1998: January-November	988	985	918	1,130	11,600	19,000	3,640	38,300	XX	914

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1998:									
November	228	130	331	185	--	150	41	1,070	11,100
December	130	276	261	189	--	112	16	984	12,100
January-December	2,250	2,140	3,710	1,860	20	1,600	559	12,100	XX
1999:									
January	239	188	277	166	--	120	38	1,030	1,030
February	198	253	339	172	1	37	48	1,050	2,080
March	291	311	427	200	2	135	79	1,440	3,520
April	265	222	344	137	2	33	72	1,070	4,590
May	248	174	348	242	(2/)	244	75	1,330	5,920
June	248	162	373	298	1	74	52	1,210	7,130
July	209	180	341	201	1	94	63	1,090	8,220
August	172	124	332	268	(2/)	65	46	1,010	9,220
September	128	158	246	192	10	35	109	878	10,100
October	85	137	336	281	(2/)	85	95	1,020	11,100
November:									
Australia	49	--	--	--	--	--	--	49	711
Belgium	--	--	--	--	--	--	--	--	125
Canada	17	--	1	--	--	1	3	22	338
France	--	9	54	24	9	2	(2/)	98	1,140
Germany	2	86	79	118	--	49	7	341	4,340
Italy	--	31	4	--	--	1	1	37	708
Japan	--	--	1	--	1	128	1	131	525
Mexico	--	--	1	--	--	--	11	12	49
Netherlands	--	--	--	--	--	--	11	11	222
South Africa	58	--	--	--	--	--	--	58	386
Sweden	--	--	140	--	--	9	--	149	1,820
United Kingdom	15	25	4	4	--	10	7	65	1,290
Other	--	--	63	(2/)	--	(2/)	29	92	535
Total	141	151	347	146	10	200	70	1,070	12,200
1999: January-November	2,220	2,060	3,710	2,300	27	1,120	746	12,200	XX
1998: January-November	2,120	1,860	3,440	1,670	20	1,490	543	11,100	XX

XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1998:									
November	460	313	140	661	7	61	150	1,790	24,100
December	577	456	171	472	1	56	218	1,950	26,000
January-December	5,970	4,150	2,500	9,100	95	1,160	3,040	26,000	XX
1999:									
January	573	264	170	575	14	104	655	2,360	2,360
February	1,090	370	129	723	6	103	263	2,680	5,040
March	896	496	163	688	7	48	206	2,500	7,540
April	910	349	168	688	72	72	266	2,530	10,100
May	545	396	181	614	3	63	193	2,000	12,100
June	682	363	225	620	5	63	272	2,230	14,300
July	702	330	192	486	4	46	483	2,240	16,500
August	643	184	322	570	7	53	273	2,050	18,600
September	806	363	139	542	6	54	164	2,080	20,700
October	927	340	145	538	5	82	204	2,240	22,900
November:									
Australia	--	(2/)	10	165	--	2	3	180	526
Belgium	(2/)	57	9	30	--	(2/)	(2/)	96	668
Canada	14	49	18	55	18	38	46	238	2,230
France	428	85	(2/)	4	--	(2/)	21	538	7,630
Germany	--	23	10	23	(2/)	3	2	61	800
India	--	2	--	1	--	--	(2/)	3	19
Ireland	--	(2/)	13	--	--	(2/)	(2/)	13	386
Italy	33	(2/)	4	22	--	(2/)	(2/)	59	943
Japan	2	8	4	133	--	1	3	151	2,090
Korea, Republic of	5	3	2	27	--	1	3	41	685
Mexico	12	1	96	1	(2/)	9	81	200	1,300
Netherlands	19	6	(2/)	(2/)	--	(2/)	(2/)	25	627
Singapore	5	6	(2/)	1	--	(2/)	2	14	248
Spain	--	(2/)	--	1	--	(2/)	--	1	28
Sweden	2	(2/)	(2/)	10	--	(2/)	--	12	116
Switzerland	4	3	--	12	--	(2/)	--	19	463
Taiwan	--	(2/)	(2/)	18	(2/)	1	1	20	259
United Kingdom	68	67	20	129	--	9	6	299	3,710
Other	3	50	7	47	1	19	184	311	2,460
Total	595	360	193	679	19	83	352	2,280	25,200
1999: January-November	8,370	3,810	2,030	6,720	145	770	3,330	25,200	XX
1998: January-November	5,400	3,690	2,330	8,620	93	1,110	2,820	24,100	XX

XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
December 1999:		
Stainless and heat resisting steels	79	21
Alloy steels	100	(1/)
Superalloys	86	14
Copper-nickel alloys	96	4
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

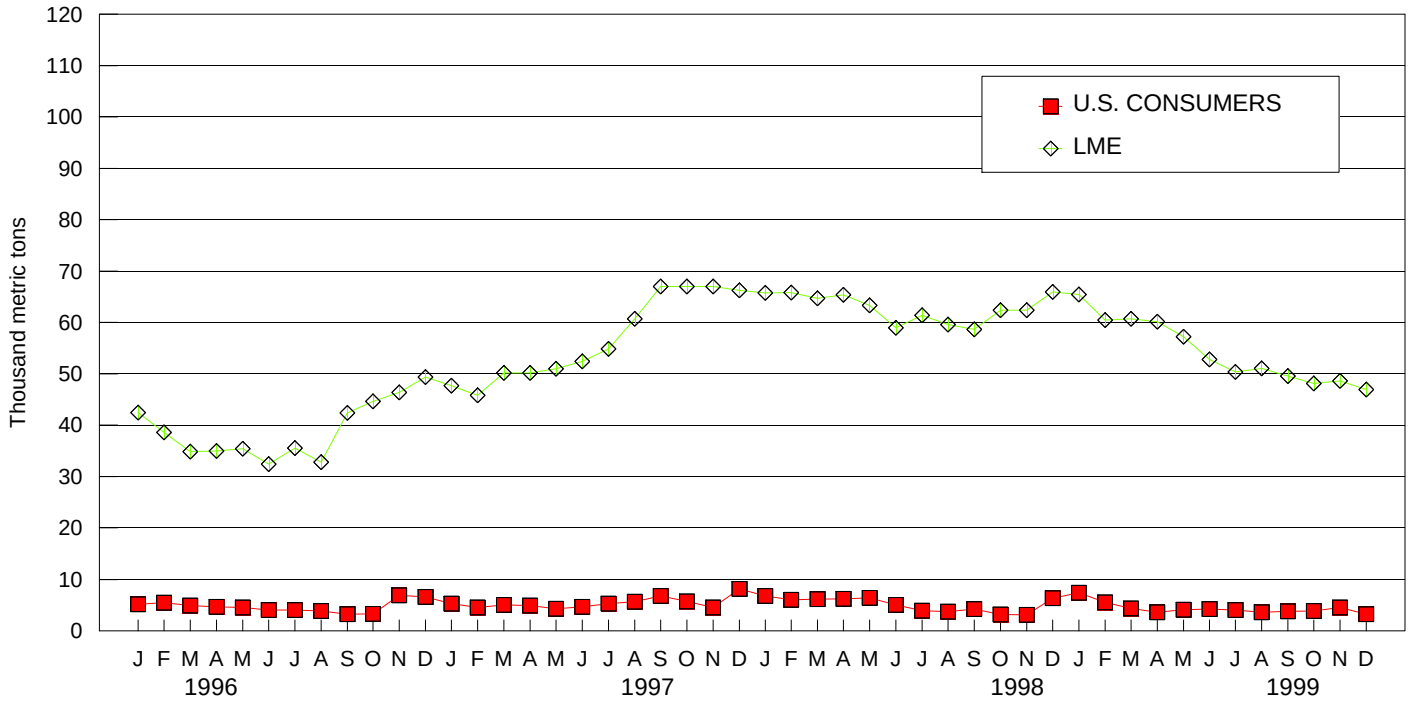
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer $/lb.	LME Cash $/t	LME Cash $/lb.	18/8 Stainless steel scrap Pittsburgh $/long ton(gw)
1999:				
Average for week ending:				
November 5	3.69-3.82	7,980.500	3.620	750-770
November 12	3.69-3.77	8,031.000	3.643	750-770
November 19	3.63-3.74	7,878.000	3.573	750-770
November 26	3.65-3.72	7,911.000	3.588	750-770
December 3	3.69-3.75	7,942.000	3.602	835-845
December 10	3.75-3.86	8,031.500	3.643	835-845
December 17	3.69-3.84	8,023.000	3.639	835-845
December 24	3.76-3.85	8,156.500	3.700	835-845
December 31	3.83-3.91	8,395.000	3.808	835-845
Average for month of:				
November	3.665	7,949.545	3.606	760
December	3.744	8,083.375	3.667	840
Yearly average p/	2.750	6,011.227	2.727	625
Average for month of:				
January 2000	3.753	8,309.500	3.769	855
2000:				
Average for week ending:				
January 7	3.85-3.87	8,234.375	3.735	850-860
January 14	3.76-3.80	8,130.000	3.688	850-860
January 21	3.47-3.91	8,282.000	3.757	850-860
January 28	3.93-3.97	8,497.500	3.854	850-860

p/ Preliminary.

Source: Platt's Metals Week and American Metal Market.

1996-99 STOCKS



1997-2000 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)